

**Phytoplankton Productivity
Experiments and Nutrient
Measurements in
the Labrador Sea from
11 February to 28 February 1978**

by B. Irwin, P. Evans and T. Platt

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**Fisheries and Marine Service
Data Report No. 114**

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ABSTRACT

Irwin, B., P. Evans and T. Platt. 1978. Phytoplankton productivity experiments and nutrient measurements in the Labrador Sea, from 11 February to 28 February 1978. Fish. Mar. Serv. Data Rep. No. 114: 38 pp.

Series of primary productivity experiments and related nutrient determinations were made from the Labrador Sea from 11 February to 28 February 1978. In this report we make available the raw data and also the fitted light saturation parameters with confidence limits.

RÉSUMÉ

Irwin, B., P. Evans and T. Platt. 1978. Phytoplankton productivity experiments and nutrient measurements in the Labrador Sea, from 11 February to 28 February 1978. Fish. Mar. Serv. Data Rep. No. 114: 38 pp.

Du 11 au 28 février des séries d'expériences sur la détermination de la production primaire et des sels nutritifs furent réalisées de la mer Labrador. Dans ce rapport nous présentons les données brutes sur ces expériences, ainsi que les paramètres avec leur intervalles de confiance que furent calculés par représenter les courbes de production en fonction de la lumière.

INTRODUCTION

This is the third in a series of data reports giving results of experiments on photosynthetic production versus light intensity for natural phytoplankton populations in the North Atlantic north of 50°N. During this cruise samples were collected from CSS Hudson in the southern half of the Labrador Sea and is a continuation of the experiments described in Irwin et al. (1978).

SAMPLING

Samples for light saturation experiments were collected with 30 L Niskin bottles from 10 and 30 m. Surface samples were collected with a plastic bucket. The location of stations is shown in Figure 1.

METHODS

Productivity

The C^{14} method as described in Strickland and Parsons (1972) was used. For light saturation experiments 20 light and 2 dark bottles were inoculated with 1 mL of sodium bicarbonate C^{14} having an approximate activity of 10 μ Ci. The inoculated bottles were placed in temperature controlled incubators and illuminated by a 150 watt flood-light (GTE Sylvania PAR 150). Temperature control was attained by continuously pumping sea water from a depth of 3 m through the incubators. Four light and two dark bottles were inoculated with the same solution of *in situ* surface productivity experiments. The bottles were incubated on deck in a shallow plexiglass incubator. Incubator temperature was controlled by the pumped sea water supply.

All incubations were terminated after four hours. Samples were immediately filtered onto 2.5 cm diameter membrand filters (0.8 μ pore size). Filters were dried in a dessicator and stored at -20°C until the end of the cruise. In the laboratory the samples were exposed to HCl fumes for ten minutes before counting in a scintillation counter.

Chlorophyll a

Replicate 2 L samples were filtered onto 5.5 cm glass fibre filters. The fluorometric technique of Yentsch and Menzel (1963) as modified by Holm-Hansen et al. (1965) was used. Acetone extracts of pure chlorophyll *a* were used to calibrate the fluorometer.

Light intensity

Total radiation in each compartment of the incubators was measured with an International Light IL700 radiometer. Light quality in each compartment was measured with an ISCO spectro-radiometer.

Incident radiation

Total incident radiation was measured with an Eppley 40 Junction pyranometer mounted on the bridge of the ship. The chosen location was essentially free from shading. The output from the pyranometer was recorded on a strip chart recorder. Hourly radiation was estimated by integrating the strip chart records with a planimeter.

Nutrients

Four inorganic nutrients concentrations were routinely measured from each sample. Three of them, phosphate, nitrate and silicate were measured in a Technicon II Autoanalyser using the following methods:

- (1) Silicate - industrial method 186-72W.
- (2) Phosphate - industrial method 155-71W.
- (3) Nitrate - industrial method 158-71W.

The fourth nutrient, ammonia, was measured on a spectrophotometer using the phenolhypochlorite method of Solórzano (1969).

Nucleic acids

Replicate 2 L samples were filtered and stored at -20°C. Membrane (4.7 cm, 0.8 μ pore size) filters were used for stations F-1 to F-12 and glass fibre filters (5.5 cm Whatman GF/C) were used for stations F-13 to F-16. The frozen filters were homogenized in buffered sodium chloride solution and centrifuged. A measured amount of the dye Ethidium bromide was added to the clear supernatant which had been transferred to a test tube. The fluorescence of this mixture was measured on a Model III Turner fluorometer (Excitation Corning 7-60, emission Wratten 23A). This is a measure of ribonucleic acid (RNA) and deoxyribonucleic acid (DNA). To the test tube is added 0.04 mL of an RNA solution, the mixture is incubated at 50°C for 60 minutes, and fluorescence is remeasured. This second reading is a measure of DNA concentration only.

Light saturation parameters

Production rates were normalized to unit chlorophyll *a* and plotted against light intensity. Three parameters were calculated (Platt et al. 1975; Jassby and Platt 1976):

- (1) the initial slope α .
- (2) the respiration R^B .
- (3) the assimilation number P_m^B .

ACKNOWLEDGEMENTS

We wish to thank D. Rudderham and M. Hodgson for their excellent technical assistance. A special thank you goes to Ray Hiltz who analysed the nutrient samples on board ship under extremely adverse weather conditions.

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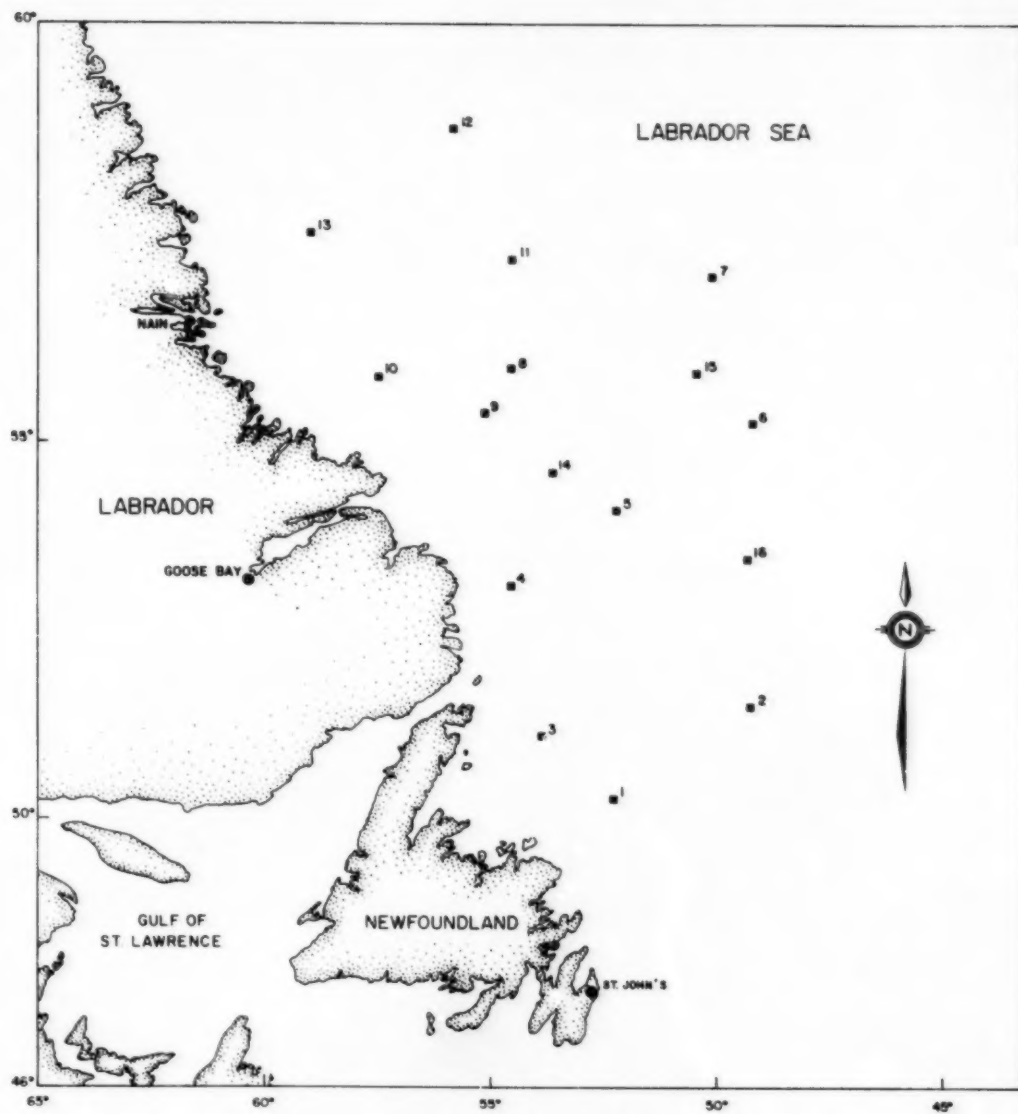


Fig. 1. Labrador Sea station positions.

LIGHT SATURATION TABLES

LABRADOR SEA

STN. 10. F - 1

50° 18.27' N 52° 22.14' W

DATE: 11/02/78

SAMPLE DEPTH: 10 M

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

352.0
182.0
62.0
27.4
13.2
6.6
3.8
2.3
1.5

1.68
1.82
1.73
1.86
1.09
0.64
0.36
0.14
0.23

241.0
93.0
28.8
15.1
7.5
3.8
2.4
0.9
0.7

1.54
1.68
1.68
1.86
0.86
0.41
0.23
0.18
0.00

Incubation Temperature: 3.0 °C

$mg at m^{-3}$

Nitrate: 8.78
Ammonia: 2.18
Silicate: 7.42
Phosphate: 1.34

$mg m^{-3}$

Chlorophyll: 0.21
RNA: 2.84
DNA: 1.30

$\alpha mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

$R^B mg C (mg Chl a)^{-1} hr^{-1}$

$P_m^B mg C (mg Chl a)^{-1} hr^{-1}$

90% Confidence Interval
lower upper

0.05 0.13
-0.08 0.25
1.61 2.09

LABRADOR SEA

STN. NO. F - 1

50° 18.27'N

52° 22.14'W

DATE: 11/02/78

SAMPLE DEPTH: 30 M

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

328.0
187.0
51.0
22.8
12.4
6.9
3.9
2.1
1.4
0.9

2.00
1.54
1.77
1.23
1.04
0.45
0.32
0.09
0.00
0.00

272.0
119.0
28.5
17.7
7.6
4.7
3.0

2.09
2.18
1.50
1.00
0.68
0.36
0.27

Incubation Temperature: 3.0°C

6

$mg at m^{-3}$

$mg m^{-3}$

Nitrate: 7.96
Ammonia: 1.44
Silicate: 7.14
Phosphate: 1.40

Chlorophyll: 0.21
RNA: 3.95
DNA: 1.55

α $mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

R^B $mg C (mg Chl a)^{-1} hr^{-1}$

P^B $mg C (mg Chl a)^{-1} hr^{-1}$

0.08

-0.01

1.91

90% Confidence Interval
lower upper

0.06

-0.12

1.76

2.06

LABRADOR SEA

STN. NO. F - 2

51° 36.7'N

49° 21.0'W

DATE: 12/02/78

SAMPLE DEPTH: 10 M

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

368.0
228.0
83.0
36.9
16.7
10.4
5.7
3.1
2.0
1.3

2.77
2.59
2.64
3.18
1.64
0.82
0.41
0.27
0.09

300.0
164.0
55.0
25.3
12.0
7.2
4.3
2.5
1.6
1.0

3.63
3.14
2.27
1.77
1.23
0.77
0.36
0.27
0.18
0.04

Incubation Temperature: 7.0°C

mg at m^{-3}

mg m^{-3}

Nitrate:
Ammonia:
Silicate:
Phosphate:

13.44
0.57
9.32
1.27

Chlorophyll: 0.22
RNA: 2.71
DNA: 1.44

α $mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

R^B $mg C (mg Chl a)^{-1} hr^{-1}$

P_m^B $mg C (mg Chl a)^{-1} hr^{-1}$

90% Confidence Interval
lower upper

0.10 0.11
-0.01 0.06
2.96 3.21

LABRADOR SEA

STN. NO. F - 2

51° 36.7' N

49° 21.0' W

DATE: 12/02/78

SAMPLE DEPTH: 30 M

Light Intensity
 $W m^{-2}$

Specific Production
mg C (mg Chl α)⁻¹ hr⁻¹

Light Intensity
 $W m^{-2}$

Specific Production
mg C (mg Chl α)⁻¹ hr⁻¹

258.0
216.0
69.0
30.1
12.6
7.6
4.3
2.2
1.4
1.0

3.46
3.24
2.92
2.23
1.73
0.92
0.76
0.23
0.11
0.05

210.0
95.0
38.6
14.8
7.4
4.6
2.6
1.4
0.9

3.08
2.49
2.23
1.51
0.76
0.49
0.27
0.11
0.05

Incubation Temperature: 7°C

mg at m⁻³

Nitrate: 27.74
Ammonia: 1.51
Silicate: 8.36
Phosphate: 1.29

mg m⁻³

Chlorophyll: 0.18
RNA: 3.40
DNA: 1.58

α mg C (mg Chl α)⁻¹ hr⁻¹ ($W m^{-2}$)⁻¹

R^B mg C (mg Chl α)⁻¹ hr⁻¹

P_m^B mg C (mg Chl α)⁻¹ hr⁻¹

90% Confidence Interval
lower upper

0.13 0.11 0.15
-0.05 -0.14 0.04
2.97 2.76 3.19

LABRADOR SEA

STN. NO. F - 3

51° 14.12'N

53° 57.97'W

DATE: 15/02/78

SAMPLE DEPTH: 10 M

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

376.0
172.0
61.0
28.0
14.7
7.6
4.2
2.3
1.2
0.8

1.70
1.15
0.89
1.06
0.77
0.51
0.17
0.13
0.00
0.13

281.0
151.0
43.0
17.8
3.6
2.6
1.5
0.7
0.5

1.49
1.70
1.79
1.49
0.38
0.25
0.04
0.04
0.04

Incubation Temperature: 2.5°C

mg at m^{-3}

mg m^{-3}

Nitrate: 7.30
Ammonia: 0.73
Silicate: 7.84
Phosphate: 1.21

Chlorophyll: 0.18
RNA: 1.91
DNA: 0.36

α $mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

R^B $mg C (mg Chl a)^{-1} hr^{-1}$

P_m^B $mg C (mg Chl a)^{-1} hr^{-1}$

90% Confidence Interval
lower upper

0.10 0.06 0.13
-0.05 -0.17 0.08
1.46 1.25 1.67

LABRADOR SEA

STN. NO. F - 3

51° 14.12'N

53° 57.97'W

DATE: 15/02/78

SAMPLE DEPTH: 30 M

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

384.0
119.0
30.2
15.6
6.4
3.8
2.0
1.0
0.8

1.51
1.67
0.90
0.57
0.24
0.20
0.12
0.00
0.00

224.0
93.0
29.8
13.8
5.1
3.5
1.8
1.0
0.7
0.4

1.59
2.04
1.31
0.73
0.37
0.20
0.08
0.08
0.04
0.04

Incubation Temperature: 2.5°C

$mg at m^{-3}$

Nitrate: 7.70
Ammonia: 0.54
Silicate: 7.75
Phosphate: 1.10

$mg m^{-3}$

Chlorophyll: 0.25
RNA: 3.11
DNA: 0.83

α $mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$
 R^B $mg C (mg Chl a)^{-1} hr^{-1}$
 P^B $mg C (mg Chl a)^{-1} hr^{-1}$

90% Confidence Interval
lower upper

0.04
0.02
1.88
0.03
-0.03
1.69
0.05
0.07
2.07

LABRADOR SEA

STN. NO. F - 4

53° 15.99' N

54° 36.73' W

DATE: 16/02/78

SAMPLE DEPTH: 10 M

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

352.0
253.0
73.0
29.6
12.6
8.1
4.4
2.4
1.6
1.0

1.51
1.40
1.62
1.30
0.76
0.59
0.16
0.11
0.00
0.00

285.0
144.0
49.0
22.6
11.1
7.1
2.7
1.5
1.1

1.24
1.40
1.24
0.81
0.54
0.32
0.16
0.05
0.05

Incubation Temperature: 2.5°C

$mg at m^{-3}$

Nitrate: 5.32
Ammonia: -
Silicate: 6.68
Phosphate: 1.03

$mg m^{-3}$

Chlorophyll: 0.18
RNA: 2.91
DNA: 0.55

$\alpha mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

$R^B mg C (mg Chl a)^{-1} hr^{-1}$

$P_m^B mg C (mg Chl a)^{-1} hr^{-1}$

90% Confidence Interval
lower upper

0.06 0.07
-0.05 0.01
1.49 1.59

LABRADOR SEA

STN. NO. F - 4

53° 15.99'N 54° 36.73'W

DATE: 16/02/78

SAMPLE DEPTH: 30 M

Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$	Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$
336.0	1.29	265.0	1.30
124.0	1.19	120.0	1.57
44.0	1.19	41.0	1.03
21.0	0.86	15.4	0.81
10.0	0.32	7.4	0.32
5.2	0.22	4.1	0.11
2.4	0.05	2.4	0.16
1.6	0.00	1.5	0.00
		0.9	0.00

Incubation Temperature: 2.5°C

	$mg at m^{-3}$	$mg m^{-3}$
Nitrate:	5.45	Chlorophyll: 0.17
Ammonia:	-	RNA: 1.84
Silicate:	6.75	DNA: 0.23
Phosphate:	1.07	

	$mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$	90% Confidence Interval lower upper
α	0.05	0.04 0.06
R^B	-0.06	-0.12 0.00
P_m^B	1.37	1.28 1.46

LABRADOR SEA

STN. NO. F - 5

54° 12.9'N 52° 12.9'W

DATE: 17/02/78

SAMPLE DEPTH: 10 M

Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$	Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$
424.0	3.38	218.0	3.54
162.0	3.59	164.0	2.51
81.0	2.31	60.0	2.15
25.0	2.41	24.3	1.79
17.0	1.23	11.0	0.92
7.8	0.67	6.2	0.46
4.1	0.31	3.1	0.26
1.4	0.00	1.8	0.15
		1.3	0.05
		0.8	0.00

Incubation Temperature: 7.0°C

mg at m^{-3}	mg m^{-3}
Nitrate: 12.25	Chlorophyll: 0.19
Ammonia: -	RNA: 2.17
Silicate: 7.98	DNA: 0.43
Phosphate: 1.24	

α $mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$	90% Confidence Interval lower	upper
0.08	0.03	0.12
R^B $mg C (mg Chl a)^{-1} hr^{-1}$	-0.17	0.32
P^B_m $mg C (mg Chl a)^{-1} hr^{-1}$	2.58	3.38

LABRADOR SEA

STN. VO. F - 5

54° 12.9'N 52° 12.9'W

SAMPLE DEPTH: 30 M

DATE: 17/02/78

Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$	Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$
336.0	2.31	259.0	2.37
158.0	2.58	115.0	2.84
45.0	1.42	36.4	1.79
21.6	1.00	15.5	1.37
10.5	0.31	7.3	0.58
5.2	0.37	3.7	0.26
3.0	0.10	2.3	0.26
1.8	0.05	1.3	0.10
1.2	0.05	0.9	0.00
0.7	0.00	0.5	0.05

Incubation Temperature: 7.0 °C

	mg at m^{-3}	mg m^{-3}
Nitrate:	14.11	Chlorophyll: 0.18
Ammonia:	-	RNA: <1.0
Silicate:	8.73	DNA: 0.23
Phosphate:	1.34	

	α $mg C (mg Chl a)^{-1} hr^{-1}$	R^B $mg C (mg Chl a)^{-1} hr^{-1}$	P_m^B $mg C (mg Chl a)^{-1} hr^{-1}$	90% Confidence Interval lower upper
	0.09	-0.06	2.37	0.08 0.10
				-0.10 -0.02
				1.99 2.77

LABRADOR SEA

STN. 10. F - 6

55° 22.9'N

49° 19.9'W

DATE: 18/02/78

SAMPLE DEPTH: 10 M

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

300.0
168.0
54.0
22.5
9.9
6.1
4.0
2.0
1.4
0.8

3.48
3.48
3.29
2.71
1.61
0.97
0.45
0.39
0.19
0.13

222.0
138.0
57.0
22.9
11.5
5.5
3.5
1.9
1.2
0.8

2.52
3.09
2.45
1.68
1.09
0.58
0.39
0.26
0.13
0.06

Incubation Temperature: 6.5°C

$mg at m^{-3}$

$mg m^{-3}$

Nitrate: 9.72
Ammonia: -
Silicate: 5.99
Phosphate: 1.22

Chlorophyll: 0.15
RNA: 2.04
DNA: 0.50

$\alpha mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

$R^B mg C (mg Chl a)^{-1} hr^{-1}$

$P_m^B mg C (mg Chl a)^{-1} hr^{-1}$

90% Confidence Interval
lower upper

0.12
0.03
3.20

0.09
-0.12
2.93

0.15
0.17
3.49

LABRADOR SEA

STN. NO. F - 6

55° 22.9'N 49° 19.9'W

SAMPLE DEPTH: 30 M

DATE: 18/02/78

Light Intensity
 $W m^{-2}$

318.0
169.0
48.0
20.4
8.7
4.5
3.7
1.6
1.0

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

1.30
1.57
0.86
0.59
0.48
0.22
0.11
0.00
0.05

Light Intensity
 $W m^{-2}$

278.0
109.0
38.0
16.4
7.8
4.4
2.4
1.4
0.9

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

1.51
1.89
1.24
0.81
0.38
0.22
0.11
0.05
0.00

Incubation Temperature: 6.5°C

$mg at m^{-3}$

Nitrate:
Ammonia:
Silicate:
Phosphate:

11.80
7.35
1.15

$mg m^{-3}$

Chlorophyll:
RNA:
DNA:

0.18
<1.0
0.23

90% Confidence Interval
lower upper

α $mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

0.06

0.07

R^B $mg C (mg Chl a)^{-1} hr^{-1}$

-0.05

-0.01

P_m^B $mg C (mg Chl a)^{-1} hr^{-1}$

1.52

1.77

LABRADOR SEA

STN. 10. F - 7

57° 10.0'N

50° 16.48'W

DATE: 19/02/78

SAMPLE DEPTH: 10 M

Light Intensity
 $W m^{-2}$

266.0
154.0
53.0
25.0
12.0
6.2
3.9
2.2
1.6
0.9

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

3.35
3.19
3.13
2.22
1.35
0.86
0.43
0.49
0.16
0.11

Light Intensity
 $W m^{-2}$

207.0
125.0
52.0
24.2
12.9
6.9
3.7
2.1
1.4
0.8

Specific Production-
 $mg C (mg Chl a)^{-1} hr^{-1}$

2.81
3.24
3.19
1.84
1.23
0.65
0.43
0.27
0.16
0.16

Incubation Temperature: 5.0°C

$mg at m^{-3}$

Nitrate:
Ammonia:
Silicate:
Phosphate:

14.45
-
8.37
1.36

$mg m^{-3}$

Chlorophyll: 0.18
RNA: 2.04
DNA: 0.42

$\alpha mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

$R^B mg C (mg Chl a)^{-1} hr^{-1}$

$P_m^B mg C (mg Chl a)^{-1} hr^{-1}$

90% Confidence Interval
lower upper

0.10 0.11
0.07 0.15
3.39 3.56

LABRADOR SEA

STN. NO. F - 7

57° 10.0'N

50° 16.48'W

DATE: 19/02/78

SAMPLE DEPTH: 30 M

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

317.0
193.0
60.0
26.6
12.0
6.4
3.8
2.2
1.2
0.9

2.97
2.97
2.46
2.17
1.20
0.63
0.34
0.17
0.11
0.06

293.0
105.0
34.2
14.6
7.3
3.5
2.4
1.5

3.03
3.37
2.23
1.31
0.57
0.28
0.06
0.06

Incubation Temperature: 5.0°C

$mg at m^{-3}$

$mg m^{-3}$

Nitrate: 13.64
Ammonia: -
Silicate: 8.53
Phosphate: 1.27

Chlorophyll: 0.17
RNA: 2.24
DNA: 0.55

α $mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

R^B $mg C (mg Chl a)^{-1} hr^{-1}$

P_m^B $mg C (mg Chl a)^{-1} hr^{-1}$

0.10

-0.06

3.06

90% Confidence Interval
Lower upper

0.11

0.00

3.20

LABRADOR SEA

STN. 10. F - 8

55° 57.76'N

54° 03.6'W

DATE: 20/02/78

SAMPLE DEPTH: 10 M

Light Intensity
 $W m^{-2}$

49.0
23.0
14.8
7.3
4.1

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

1.80
1.40
0.90
0.30
0.00

Light Intensity
 $W m^{-2}$

212.0
139.0
52.0
21.7
10.3
5.3
3.1
1.7
1.2
0.6

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

2.00
2.50
2.30
1.10
1.20
0.40
0.40
0.10
0.10
0.10

Incubation Temperature: 7.0 °C

$mg at m^{-3}$

Nitrate: 14.89
Ammonia:
Silicate: 9.00
Phosphate: 1.32

$mg m^{-3}$

Chlorophyll: 0.10
RNA: 1.84
DNA: 0.33

α $mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

R^B $mg C (mg Chl a)^{-1} hr^{-1}$

P_m^B $mg C (mg Chl a)^{-1} hr^{-1}$

90% Confidence Interval
lower upper

0.08 0.11
0.00 0.24
2.19 2.46

LABRADOR SEA

STN. 10. F - 8

55° 57.76'N

54° 03.6'W

DATE: 20/02/78

SAMPLE DEPTH: 30 M

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

298.0
170.0
57.0
23.2
11.6
6.7
4.0
2.1
1.2
0.7

1.33
1.22
1.22
0.78
0.67
0.44
0.11
0.11
0.00
0.00

266.0
133.0
43.0
18.2
8.3
4.3
2.7
1.4
0.9

0.89
1.22
1.44
0.67
0.33
0.22
0.11
0.11
0.00

Incubation Temperature: 7.0°C

mg at m^{-3}

mg m^{-3}

Nitrate: 13.61
Ammonia: -
Silicate: 8.25
Phosphate: 1.33

Chlorophyll: 0.08
RNA: <1.0
DNA: 0.23

α $mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

R^B $mg C (mg Chl a)^{-1} hr^{-1}$

P^B $mg C (mg Chl a)^{-1} hr^{-1}$

90% Confidence Interval
lower upper

0.05 0.04 0.06
0.00 -0.07 0.07
1.21 1.10 1.32

LABRADOR SEA

STN. NO. F - 9

55° 26.87'N 55° 19.33'W

DATE: 21/02/78

SAMPLE DEPTH: 10 M

Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$	Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$
291.0	2.57	168.0	1.62
113.0	2.09	159.0	2.00
31.7	1.81	51.0	1.43
16.9	1.71	25.1	1.14
8.3	0.86	11.6	0.76
4.4	0.48	6.1	0.28
2.5	0.19	3.8	0.28
1.5	0.19	1.9	0.09
0.6	0.28	0.7	0.09

21

Incubation Temperature: 3.0°C

	$mg at m^{-3}$	$mg m^{-3}$
Nitrate:	8.36	Chlorophyll: 0.10
Ammonia:	2.50	RNA: 2.16
Silicate:	9.29	DNA: 0.42
Phosphate:	1.30	

	$mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$	90% Confidence Interval
α	0.06	lower 0.04 upper 0.08
R^B	0.09	-0.04 0.21
P_m^B	2.24	1.90 2.60

LABRADOR SEA

STN. 10. F - 9

55° 26.87'N

55° 19.33'W

SAMPLE DEPTH: 30 M

DATE: 21/02/78

Light Intensity $W m^{-2}$	Specific Production mg C (mg Chl α) $^{-1} hr^{-1}$	Light Intensity $W m^{-2}$	Specific Production mg C (mg Chl α) $^{-1} hr^{-1}$
311.0	1.28	257.0	1.36
185.0	1.20	101.0	1.44
61.0	1.20	31.3	1.44
26.2	0.88	14.6	0.72
12.4	0.56	7.6	0.32
3.7	0.08	3.9	0.08
2.1	0.08	2.3	0.08
1.4	0.08	1.3	0.00

22

Incubation Temperature: 3.0°C

mg at m^{-3}		mg m^{-3}	
Nitrate:	9.25	Chlorophyll:	0.12
Ammonia:	1.16	RNA:	1.32
Silicate:	9.03	DNA:	0.24
Phosphate:	2.13		
α mg C (mg Chl α) $^{-1} hr^{-1}$ ($W m^{-2}$) $^{-1}$	0.05	90% Confidence Interval lower	0.04
R^B mg C (mg Chl α) $^{-1} hr^{-1}$	-0.07	upper	0.06
P_m^B mg C (mg Chl α) $^{-1} hr^{-1}$	1.40		0.01
			1.52

LABRADOR SEA

STN. 30. F - 10

55° 53.95'N

58° 24.18'W

DATE: 22/02/78

SAMPLE DEPTH: 10 M

Light Intensity
 $W m^{-2}$

290.0
150.0
35.4
16.2
5.7
3.0
1.9
1.5
1.0

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

1.08
1.17
1.00
0.75
0.42
0.25
0.17
0.08
0.00

Light Intensity
 $W m^{-2}$

214.0
166.0
34.4
18.2
9.6
5.1
3.4
2.0
1.2
0.8

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

1.00
1.17
1.08
0.75
0.67
0.25
0.17
0.08
0.08
0.08

Incubation Temperature: 2.5°C

$mg at m^{-3}$

Nitrate: 7.42
Ammonia: 1.87
Silicate: 9.32
Phosphate: 1.33

$mg m^{-3}$

Chlorophyll: 0.11
RNA: 2.24
DNA: 0.55

α $mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

0.06

R^B $mg C (mg Chl a)^{-1} hr^{-1}$

0.00

P_m^B $mg C (mg Chl a)^{-1} hr^{-1}$

1.13

90% Confidence Interval
lower upper

0.05 0.07

-0.05 0.06

1.06 1.20

LABRADOR SEA

STN. NO. F - 10

55° 53.95'N

58° 24.18'W

DATE: 22/02/78

SAMPLE DEPTH: 30 M

Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$	Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$
336.0	0.96	269.0	0.59
172.0	0.89	90.0	0.81
36.8	0.96	19.8	0.89
16.6	0.59	10.1	0.52
8.8	0.44	5.5	0.30
4.4	0.22	3.7	0.15
3.2	0.15	1.1	0.07
0.8	0.00	0.5	0.00

Incubation Temperature: 2.5°C

	$mg at m^{-3}$	$mg m^{-3}$
Nitrate:	7.41	Chlorophyll: 0.12
Ammonia:	1.98	RNA: <1.0
Silicate:	9.03	DNA: <0.2
Phosphate:	1.30	

	$mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$	90% Confidence Interval lower	upper
α	0.05	0.04	0.06
R^B	0.00	-0.04	0.04
P_m^B	0.92	0.86	0.99

LABRADOR SEA

STN. JO. F - 11

57° 18.98' N

54° 41.1' W

DATE: 23/02/78

SAMPLE DEPTH: 10 M

Light Intensity
 $W m^{-2}$

261.0
146.0
56.0
24.7
10.8
5.3
3.7
1.9

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

1.56
1.39
1.48
1.22
0.52
0.35
0.17
0.00

Light Intensity
 $W m^{-2}$

207.0
129.0
46.0
20.7
9.5
5.5
3.3
1.9
1.2

Specific Production -
 $mg C (mg Chl a)^{-1} hr^{-1}$

1.74
1.56
1.48
1.13
0.69
0.35
0.26
0.17
0.09

Incubation Temperature: 6.0°C

$mg at m^{-3}$

Nitrate: 16.05
Ammonia: 1.24
Silicate: 8.99
Phosphate: 1.33

$mg m^{-3}$

Chlorophyll: 0.11
RNA: <1.0
DNA: 0.45

α $mg C (mg Chl a)^{-1} hr^{-1}$ ($W m^{-2}$)⁻¹

0.05

R^P $mg C (mg Chl a)^{-1} hr^{-1}$

0.04

P_m^P $mg C (mg Chl a)^{-1} hr^{-1}$

1.59

90% Confidence Interval
lower upper

0.07

0.13

1.67

LABRADOR SEA

STN. 10. F - 11

57°18.98'N 54°41.1'W

DATE: 23/02/78

SAMPLE DEPTH: 30 M

Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$	Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$
298.0	1.70	213.0	1.60
162.0	1.80	96.0	1.70
43.0	1.60	31.1	1.50
10.4	1.00	14.8	0.80
6.1	0.30	6.8	0.50
3.6	0.20	3.7	0.20
2.1	0.10	2.3	0.20
1.2	0.10	1.2	0.00
0.7	0.00	0.9	0.00
		0.5	0.00

26

Incubation Temperature: 6.0°C

$mg at m^{-3}$		$mg m^{-3}$	
Nitrate:	16.55	Chlorophyll:	0.09
Ammonia:	2.50	RNA:	<1.0
Silicate:	8.78	DNA:	<0.2
Phosphate:	1.31		
$mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$		90% Confidence Interval	
α	0.09	lower	upper
P^B	-0.08	0.08	0.10
P_m^B	1.78	-0.15	-0.02
		1.66	1.89

LABRADOR SEA

STN. 10. F - 12

58°48.29'N 55°46.27'W

SAMPLE DEPTH: 10 M

DATE: 24/02/78

Light Intensity
 $W m^{-2}$

261.0
151.0
39.7
17.2
8.1
4.5
3.3
2.0
1.2
0.7

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

2.61
2.69
2.78
1.74
0.96
0.61
0.43
0.17
0.09
0.00

Light Intensity
 $W m^{-2}$

206.0
128.0
45.0
21.8
3.5
2.0
1.3
0.7

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

2.35
2.17
1.56
1.65
0.35
0.26
0.09
0.00

Incubation Temperature: 7.0°C

$mg at m^{-3}$

Nitrate: 14.89
Ammonia: 0.10
Silicate: 7.79
Phosphate: 1.28

$mg m^{-3}$

Chlorophyll: 0.11
RNA: <1.0
DNA: 0.21

α $mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

P^B $mg C (mg Chl a)^{-1} hr^{-1}$

P^B_m $mg C (mg Chl a)^{-1} hr^{-1}$

90% Confidence Interval
lower upper

0.13 0.12 0.15
-0.07 -0.11 -0.02
2.41 2.16 2.66

LABRADOR SEA

STN. 10. F - 12

58°48.29'N

55°46.27'W

DATE: 24/02/78

SAMPLE DEPTH: 30 M

Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$	Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$
316.0	1.93	195.0	2.07
186.0	1.86	98.0	2.07
52.0	1.93	30.0	1.78
23.6	1.64	14.4	0.93
11.2	0.93	6.7	0.50
5.7	0.57	3.2	0.28
3.8	0.28	2.1	0.14
2.1	0.14	1.1	0.07
1.3	0.14	0.8	0.07
0.9	0.00		

Incubation Temperature: 7.0°C

	mg at m^{-3}	mg m^{-3}
Nitrate:	14.84	Chlorophyll: 0.13
Ammonia:	0.03	RNA: <1.0
Silicate:	7.56	DNA: 0.34
Phosphate:	1.24	

	$mg C (mg Chl a)^{-1} hr^{-1}$	$W m^{-2}$	90% Confidence Interval
α	0.09	0.07	lower upper
β	-0.02	-0.08	0.10
γ	2.01	1.95	0.03
			2.08

LABRADOR SEA

STN. 10. F - 13

57°33.63'N 59°08'74"W

DATE: 25/02/78

SAMPLE DEPTH: 10 M

Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$	Light Intensity $W m^{-2}$	Specific Production $mg C (mg Chl a)^{-1} hr^{-1}$
290.0	0.67	221.0	0.95
121.0	0.67	148.0	1.05
37.9	0.67	49.0	0.76
16.7	0.38	21.2	0.76
7.4	0.38	10.1	0.48
3.7	0.19	3.0	0.19
2.4	0.09	1.8	0.00
1.6	0.00	1.1	0.00
0.9	0.00		

Incubation Temperature: 1.5°C

	mg at m^{-3}	mg m^{-3}
Nitrate:	8.48	Chlorophyll: 0.10
Ammonia:	0.22	RNA: 1.98
Silicate:	9.97	DNA: 1.89
Phosphate:	1.28	

	$mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$	90% Confidence Interval lower	upper
α	0.05	0.04	0.06
β	-0.06	-0.11	0.00
β_m	0.85	0.75	0.94

LABRADOR SEA

STN. 10. F - 13

57°33.63'N

59°08.74'W

SAMPLE DEPTH: 30 M

DATE: 25/02/78

Light Intensity
 $W m^{-2}$

299.0
168.0
53.0
22.5
10.6
5.6
3.4
2.2
1.3
0.6

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

1.27
1.27
0.73
0.91
0.73
0.54
0.36
0.18
0.36
0.18

Light Intensity
 $W m^{-2}$

103.0
33.6
19.2
5.8
3.7
2.3
1.3
0.8
0.5

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

1.09
0.54
0.54
0.36
0.18
0.00
0.18
0.18
0.18

Incubation Temperature: 1.5°C

$mg at m^{-3}$

Nitrate: 8.93
Ammonia: 0.34
Silicate: 9.68
Phosphate: 1.22

$mg m^{-3}$

Chlorophyll: 0.04
RNA: <1.0
DNA: 1.02

$mg C (mg Chl a)^{-1} hr^{-1}$
 $mg C (mg Chl a)^{-1} hr^{-1}$
 $mg C (mg Chl a)^{-1} hr^{-1}$

0.05
0.11
1.02

90% Confidence Interval
lower

0.03
0.02
0.83

upper

0.07
0.20
1.22

LABRADOR SEA

STN. 10. F - 14

54°44.61'N 53°44.99'W

SAMPLE DEPTH: 10 M

DATE: 26/02/78

Light Intensity
 $W m^{-2}$

283.0
104.0
38.6
17.6
8.1
4.4
2.3
1.5
1.0
0.7

Specific Production
mg C (mg Chl a) $^{-1} hr^{-1}$

2.70
2.94
2.00
1.53
1.06
0.47
0.47
0.23
0.12
0.12

Light Intensity
 $W m^{-2}$

206.0
131.0
49.0
20.5
9.8
5.7
2.9
1.8
1.1

Specific Production
mg C (mg Chl a) $^{-1} hr^{-1}$

2.47
2.23
2.12
1.65
0.82
0.59
0.35
0.12
0.00

Incubation Temperature: - 3.0°C

mg at m^{-1}

Nitrate: 7.18
Ammonia: 2.25
Silicate: 8.89
Phosphate: 1.18

mg m^{-1}

Chlorophyll: 0.08
RNA: 1.82
DNA: 1.03

α mg C (mg Chl a) $^{-1} hr^{-1}$ ($W m^{-2}$) $^{-1}$

0.10

β mg C (mg Chl a) $^{-1} hr^{-1}$

0.04

β mg C (mg Chl a) $^{-1} hr^{-1}$

2.49

90% Confidence Interval
lower upper

0.07 0.12

-0.07 0.16

2.32 2.66

LABRADOR SEA

STN. NO. F - 14

54°44.61'N 53°44.99'W

DATE: 26/02/78

SAMPLE DEPTH: 30 M

Light Intensity $W m^{-2}$	Specific Production mg C (mg Chl a) $^{-1} hr^{-1}$	Light Intensity $W m^{-2}$	Specific Production mg C (mg Chl a) $^{-1} hr^{-1}$
311.0	2.17	190.0	1.56
171.0	1.91	89.0	2.09
51.0	1.74	29.4	1.30
21.6	1.30	13.3	0.78
9.8	0.69	5.8	0.35
5.6	0.52	3.2	0.09
3.1	0.17	1.8	0.17
2.0	0.09	1.1	0.09
1.3	0.09	0.7	0.00
0.8	0.00		

Incubation Temperature: 3.0°C

32

mg at m^{-1}	mg m^{-1}
Nitrate: 7.52	Chlorophyll: 0.10
Ammonia: 1.01	RNA: 4.32
Silicate: 8.71	DNA: 0.75
Phosphate: 1.18	

α mg C (mg Chl a) $^{-1} hr^{-1}$ ($W m^{-2}$) $^{-1}$	90% Confidence Interval lower upper
0.08	0.06 0.09
P^B mg C (mg Chl a) $^{-1} hr^{-1}$	-0.10 0.02
$P^B_{m_i}$ mg C (mg Chl a) $^{-1} hr^{-1}$	1.90 2.13

LABRADOR SEA

STN. 10. F - 15

56°01.68'N 50°34.75'W

SAMPLE DEPTH: 10 M

DATE: 27/02/78

Light Intensity
 $W m^{-2}$

246.0
132.0
51.0
24.3
11.1
6.4
3.9
2.0
1.3

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

2.91
3.48
3.04
2.17
1.22
0.61
0.48
0.26
0.13

Light Intensity
 $W m^{-2}$

215.0
119.0
47.0
20.5
10.1
5.6
3.2
1.7
1.1
0.7

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

3.35
2.91
3.09
1.96
1.09
0.65
0.39
0.22
0.17
0.09

Incubation Temperature: 5°C

$mg at m^{-2}$

Nitrate: 14.00
Ammonia: 0.33
Silicate: 8.77
Phosphate: 1.16

$mg m^{-2}$

Chlorophyll: 0.23
RNA: 3.98
DNA: 0.91

$mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

0.10

0.11

$mg C (mg Chl a)^{-1} hr^{-1}$

0.03

0.07

$mg C (mg Chl a)^{-1} hr^{-1}$

3.28

3.40

90% Confidence Interval
lower upper

0.09

0.00

3.16

LABRADOR SEA

STN. 10. F - 15

56°01.68'N 50°34.75'W

DATE: 27/02/78

SAMPLE DEPTH: 30 M

Light Intensity W m^{-2}	Specific Production $\text{mg C (mg Chl a)}^{-1} \text{hr}^{-1}$	Light Intensity W m^{-2}	Specific Production $\text{mg C (mg Chl a)}^{-1} \text{hr}^{-1}$
308.0	2.23	186.0	2.20
134.0	2.16	84.0	2.13
46.0	2.20	24.2	1.54
21.8	1.44	13.9	0.95
10.7	0.85	5.9	0.56
5.7	0.46	3.4	0.23
3.3	0.26	2.0	0.16
1.7	0.10	1.1	0.13
1.1	0.10	0.7	0.06
0.6	0.03	0.5	0.06

Incubation Temperature: 5.0°C

mg at m^{-3}

Nitrate: 14.56
Ammonia: 0.56
Silicate: 8.39
Phosphate: 1.27

mg m^{-3}

Chlorophyll: 0.30
RNA: <1.0
DNA: <0.2

α $\text{mg C (mg Chl a)}^{-1} \text{hr}^{-1}$ (W m^{-2})⁻¹: 0.07
 β $\text{mg C (mg Chl a)}^{-1} \text{hr}^{-1}$: 0.02
 γ $\text{mg C (mg Chl a)}^{-1} \text{hr}^{-1}$: 2.22

90% Confidence Interval
lower upper

0.06 0.08
-0.01 0.06
2.16 2.29

LABRADOR SEA

STN. 10. F - 16

53°34.8'N

49°24.0'W

DATE: 28/02/78

SAMPLE DEPTH: 10 M

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

Light Intensity
 $W m^{-2}$

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

287.0
107.0
42.0
15.1
8.1
4.1
2.5
1.3
1.0
0.7

1.72
2.06
1.62
1.31
1.00
0.56
0.37
0.12
0.06
0.00

242.0
68.0
35.1
14.0
6.7
4.1
2.0
1.1
0.9
0.5

1.97
1.97
1.50
1.09
0.81
0.53
0.28
0.16
0.03
0.03

Incubation Temperature: 6.5°C

$mg at m^{-3}$

Nitrate: 13.78
Ammonia: 1.09
Silicate: 8.37
Phosphate: 1.33

$mg m^{-3}$

Chlorophyll: 0.31
RNA: 3.25
DNA: 0.43

α $mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

R^B $mg C (mg Chl a)^{-1} hr^{-1}$

P^B $mg C (mg Chl a)^{-1} hr^{-1}$

90% Confidence Interval
lower upper

0.15
-0.07
1.84

0.13
-0.11
1.70

0.17
-0.02
1.98

LABRADOR SEA

STN. 10. F - 16

53°34.8'N

49°24.0'W

SAMPLE DEPTH: 30 M

DATE: 28/02/78

Light Intensity
 $W m^{-2}$

313.0
104.0
37.4
16.1
7.7
4.1
2.1
1.2
0.9
0.5

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

2.78
2.48
2.65
2.09
1.13
0.61
0.39
0.13
0.13
0.04

Light Intensity
 $W m^{-2}$

208.0
43.0
21.8
9.3
4.5
2.3
1.4
0.7
0.6
0.1

Specific Production
 $mg C (mg Chl a)^{-1} hr^{-1}$

2.48
2.48
2.17
1.26
0.69
0.39
0.26
0.13
0.17
0.13

Incubation Temperature: 6.5°C

$mg at m^{-3}$

Nitrate: 13.93
Ammonia: 0.10
Silicate: 8.20
Phosphate: 1.29

$mg m^{-3}$

Chlorophyll: 0.22
RNA: <1.0
DNA: <0.2

$\alpha mg C (mg Chl a)^{-1} hr^{-1} (W m^{-2})^{-1}$

$P^E mg C (mg Chl a)^{-1} hr^{-1}$

$P^E mg C (mg Chl a)^{-1} hr^{-1}$

90% Confidence Interval
lower upper

0.13 0.12 0.14
0.05 0.02 0.09
2.63 2.51 2.74

Surface Incubation Experiments - Nutrients

Date	Station	Nitrate mg-at m ⁻³	Silicate mg-at m ⁻³	Phosphate mg-at m ⁻³	Ammonia mg-at m ⁻³
11/02/78	F-1	13.73	10.46	2.22	-
12/02/78	F-2	14.32	9.03	1.42	1.34
15/02/78	F-3	7.86	9.32	1.71	2.04
16/02/78	F-4	6.02	8.43	1.12	-
17/02/78	F-5	12.25	7.85	1.34	-
18/02/78	F-6	13.26	8.24	1.24	-
19/02/78	F-7	13.53	7.80	1.34	-
20/02/78	F-8	14.16	8.68	1.41	-
21/02/78	F-9	9.21	9.00	2.16	-
22/02/78	F-10	7.54	9.48	1.46	0.98
23/02/78	F-11	16.42	9.10	1.49	0.40
24/02/78	F-12	14.32	8.08	1.43	0.50
25/02/78	F-13	8.56	10.08	1.23	0.38
26/02/78	F-14	7.20	9.07	1.24	0.82
27/02/78	F-15	14.24	8.88	1.34	0.16
28/02/78	F-16	13.80	8.64	-	0.44

Surface Incubation Experiments - Production and Radiation

Date	Station	Production mg C m ⁻³ h ⁻¹	Total Radiation langleys h ⁻¹
11/02/78	F-1	0.20	14.8
12/02/78	F-2	0.54	15.2
15/02/78	F-3	0.41	10.8
16/02/78	F-4	0.24	10.7
17/02/78	F-5	0.50	7.3
18/02/78	F-6	0.26	4.5
19/02/78	F-7	0.58	4.0
20/02/78	F-8	0.24	10.7
21/02/78	F-9	0.12	10.2
22/02/78	F-10	0.10	22.2
23/02/78	F-11	0.16	27.9
24/02/78	F-12	0.30	23.8
25/02/78	F-13	0.08	15.0
26/02/78	F-14	0.19	14.9
27/02/78	F-15	0.68	28.7
28/02/78	F-16	0.44	18.3